

Outcomes from the Prince George Cardiac and Pulmonary Rehabilitation Program: Filling a service gap while training students in patient care and quality improvement



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THE UNIVERSITY OF BRITISH COLUMBIA

Department of Physical Therapy
Faculty of Medicine

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Kerrie Roberts, RPT

Candice Herbert, MPT student



In partnership with



YMCA of
Northern BC

Chris Kinch- YMCA
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Disclosure

Robin Roots, RPT

- Instructor, UBC Department of Physical Therapy
- Partner in the development of the PG Cardiac and Pulmonary Rehabilitation Program (PG CPRP) and funding of the PT position
- Provided PT coverage for CPRP and supervised students

Kerrie Roberts, RPT

- Clinical Faculty, UBC Department of PT
- Provided PT coverage for CPRP and supervised students

Candice Herbert, MPT Student (2016-2018)

- Completed clinical placement at CPRP as part of MPT program requirements
- Conducting QI project as part of MPT program requirements

Overview

- Recognized gap in services
- Evidence
- Program development
- Evaluation: Measures
- Outcomes
- Student learning
 - Clinical placement
 - Quality Improvement projects
- Sustainability

The “Gap” in Care

2015: Prince George community members raised concern regarding gaps in services for individuals following a cardiac event and/or with a diagnosis of a chronic pulmonary condition.

COPD and Cardiac Arrest are the number 2 and 4 reasons respectively, for admission to hospital in Northern BC (2014/15).

The “Evidence”

Phase II community-based comprehensive exercise and education-based **Cardiac rehabilitation** programs:

- reduce hospitalization rates and prevent the reoccurrence of acute events over time (Hearn et al, 2011)
- reduce cardiac mortality after acute cardiac events by 26% (Taylor et al, 2004),
- increase adoption of healthy behaviours, self-management strategies and improve quality of life (Duarte et al, 2011)
- shown to be cost effective as compared to usual care and less expensive than other programs including drug-therapy while demonstrating an increase in quality-adjusted life years gained (Oldridge et al., 2008)

Pulmonary rehabilitation is an effective intervention to:

- improve the health status of patients with COPD
- decreased hospitalization from exacerbations and reduced direct health care costs (Golmohammadi et al, 2004)

The “Gap” in MPT Education

Students in the MPT program must complete clinical education in a variety of areas of practice:

- Chronic Disease Management
- Community Health



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→ Opportunity for partnership



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- Tripartite partnership
- Steering Committee:
 - Medical leads, Stakeholders, Patient partners and representative organizations
- Evaluation framework - focused on national Quality Indicators



YMCA of
Northern BC



northern health
the northern way of caring

Pilot the provision of a comprehensive exercise and education program for:

1. Individuals following cardiac events, and
2. Individuals with chronic pulmonary conditions such as chronic obstructive pulmonary disease (COPD)

→ Provide clinical education opportunities for MPT students in Northern BC

About the Program

- Implemented: Cardiac- February 2016; Pulmonary - April 2016
- Modelled on best practice guidelines
- 10 week program, 3 days/wk (Cardiac); 2 days/wk (Pulmonary)
- Supervised / monitored, personalized exercise program
- Group education sessions
- Physiotherapist, Exercise Physiologist & MPT students
 - Initial assessment, exercise prescription
 - Exercise program monitoring
- 10-15 patients per program stream at any given time
 - depending on level of risk (all participants stratified)
- Referral sources – Family Doctor, Specialist, Tertiary centres, NH Community Services, Self Referral (self-referrals would be linked with the Family Physician for support)

PATIENT OUTCOMES	PROGRAM OUTCOMES	SYSTEM OUTCOMES
<p>Exercise Capacity:</p> <ul style="list-style-type: none"> • McNaughton Submaximal Treadmill test • 6 Minute Walk Test 	<p># of Referrals received</p> <ul style="list-style-type: none"> • cardiac issues • Pulmonary disease <p>Wait time from referral to start</p>	<p>Reduced emergency department visits due to:</p> <ul style="list-style-type: none"> • poorly managed cardiac symptoms • exacerbations of COPD
<p>Disease state:</p> <ul style="list-style-type: none"> • BODE / MMRC • COPD Assessment Tool • St George's Respiratory Questionnaire 	<p>Patient satisfaction:</p> <ul style="list-style-type: none"> • questionnaire <p>Program attendance / adherence/ attrition</p>	<p>Reduced hospitalizations associated with:</p> <ul style="list-style-type: none"> • poorly managed cardiac symptoms • exacerbations of COPD
<p>Risk factor:</p> <ul style="list-style-type: none"> • Depression (HADS) • Physical activity / exercise • Tobacco use • Blood lipid profile • Blood pressure • Weight management • Diabetes management 		

Program Stats

	Cardiac Program	Pulmonary Program
Program Duration	Feb. 29, 2016 – Feb. 16, 2018	April 11, 2016 – Feb 16, 2018
Program in operation	2016= 42 weeks; 2017 = 42 weeks	
Total Referrals	175	99
Total Participants	75	45
Participants who did not complete all 10 weeks	8	8
Diagnosis of Participants	CABG, Stent, NSTEMI, Heart failure	COPD, Pulmonary Fibrosis, Bronchiectasis
Referral Source	Specialist, Family GP	Specialist, Family GP, Primary IPT
How did you hear about the program?	Family Physician, Specialist, word of mouth, NORTH Clinic, St. Paul's, KGH Cardiac Centre, TV/Newspaper	Specialist, Family Physician, YMCA, TV/Newspaper

Patient Outcomes / Program Outcomes

Proposed Outcomes	Cardiac Program		Pulmonary Program	
Improved exercise and activity tolerance	Average ↑ 0.857 increase in METS 52% of participants improved > 1 MET		Average change in 6 min walk = 62.1 m 75% of part ↑ >30m; 56% ↑ >50m	
Improved Self efficacy	144	163	---	----
Improved well-being and decreased anxiety and depression (HADS)	Depression (pre): 5.47 Anxiety (pre): 5.2	Depression (post): 4.67 Anxiety (post): 4.87	Depression (pre): 5.8 Anxiety (pre): 7.3	Depression (post): 5.2 Anxiety (post): 6.6
Satisfaction- rate your experience overall	21% = 8/10 21.5% = 9/10 57% = 10/10			
Would you recommend the program?	17% = Yes 83% = Most definitely			

Testimonial

"I can't begin to express my thanks for the support, encouragement, structure and guidance that the Cardiac Rehab Team has offered. The program has helped to improve not only my stamina and strength but also my confidence.

After a few weeks in the Cardiac Rehab Programme, I [went for a follow up medical appointment]. The cardiac nurse noted it was "a significant improvement" and the doctor was pleased to see the results.

Thank you, from the bottom of my complicated, not-entirely-normal-but-slightly-better-trained heart, thank you. I appreciate the time and energy you have invested into getting the programme up and running. Perhaps, with continued training, I will be up and running at some point too."

Testimonials

- *"I believe the program is excellent, it has gone a long way towards increasing my confidence and allows me to set goals for myself that are attainable"*
- *" Thank you for your wonderful program, for the kind and personal attention, for sharing your expertise, for the effort each of you has put into the instructional portions of the program and for pushing me to reach new heights in cardiac recovery".*
- *" I can tell you I feel much more confident in my ability to carry on with activities and a normal life style that , for some time, I felt was unattainable."*
- *" I am so positive about the program I have applied for the volunteer position of cardiac fitness ambassador and hope to be a successful candidate. I can't say enough good things about the program. Well done!"*

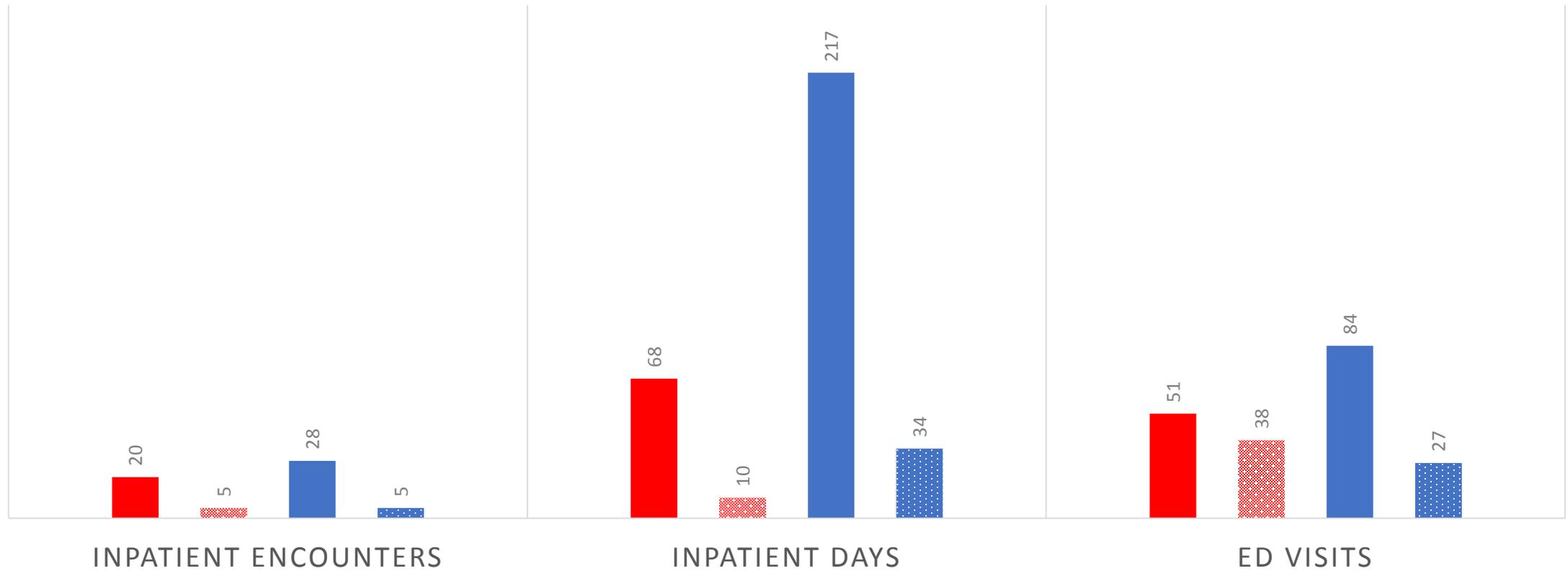
Post program follow-up comments and Directions for the future:

- *"I've just not been able to find the motivation like it was at the YMCA. My family has tried to encourage me, with no luck."*

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System outcomes: comparison of pre & post acute care utilization

■ Cardiac Pre ■ Cardiac Post ■ Pulmonary Pre ■ Pulmonary Post



Based on data from EDIS and DAD Jan 2015 – Sept 2017: 48 Cardiac rehab participants & 39 Pulmonary rehab participants

Cardiac Rehabilitation – system outcomes

Inpatient Encounters (Admissions) – 75% reduction

Inpatient Days – 85% reduction in bed days, 41% reduction in LOS

ED Visits – 25% reduction

→ Process changes underway to have all cardiac patients triaged appropriately to Clinic NORTH and/or PG CPRP

Pulmonary Rehabilitation- system outcomes

Inpatient Encounters (Admissions) – 82% reduction

Inpatient Days – 84% reduction in bed days, 41% reduction in LOS

ED Visits – 68% reduction

→ Process changes: Referral to Pulmonary Rehab is now part of the COPD Order Set

Cost - Benefit Comparison for Pulmonary Rehab- *unofficial*

- Avg. cost per patient for hospital care in BC for COPD = \$6,639
 - Data from January 2017 – August 2017
- PRE- 28 encounters x \$6,639 = \$185,892
- POST- 5 encounters x \$6,639 = \$33,195
- Total Savings in COPD encounters alone for 8 months = \$152, 697
- Northern Health cost x 8 months Pulmonary Rehab Program = \$15,000

MPT Clinical education placement

- 21 MPT students completed their clinical education with the PG CPRP

Participant feedback regarding the student involvement in the program

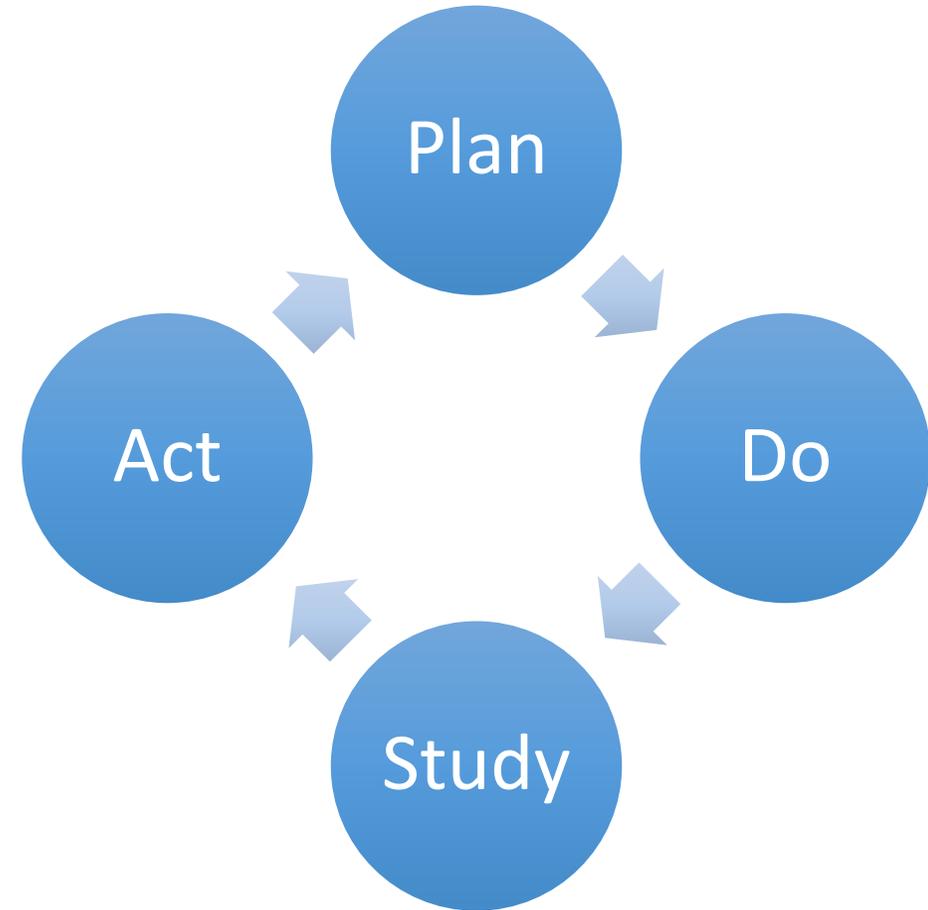
- *"They were open to discussion and trying new things so I felt listened to and acknowledged. Their energy and positivity rubbed off on me - yay!"*
- *" Remember the students? They were great. Strong, informed youth are the future of this world. Each different, all amazing!"*.

Student feedback regarding the participants in the program

- *"It was amazing to watch the attitude change and gains in confidence over the 5 weeks, it was like night and day for some people"*.

MPT Student QI projects

- A team based approach to Quality Improvement that involves mentors, students, and participants.
- The chance to implement change where gaps or issues have been identified.
- Use a PDSA cycle to examine small changes and measure their success. Then refine changes based on what was learned.



QI 2017

Question:

Based on self-report measures, what are barriers and facilitators to participants' continued physical activity 3-6 months following program completion, and how do participants perceive the program has impacted their continued physical activity levels to this time point?

Results:

Participants meeting the recommended exercise volume of 150 mins/week:

- 54% of all participants

Common barriers to physical activity:

- Weather, ill-health/fatigue, pulmonary exacerbation, and lack of motivation

QI 2018

- Care gap in tools and resources provided to participants to assist in maintaining levels of physical activity post-discharge
- Determine if implementing a tool designed to address the previously recognized barriers to exercise increases the percentage of participants achieving recommended activity levels post-discharge.

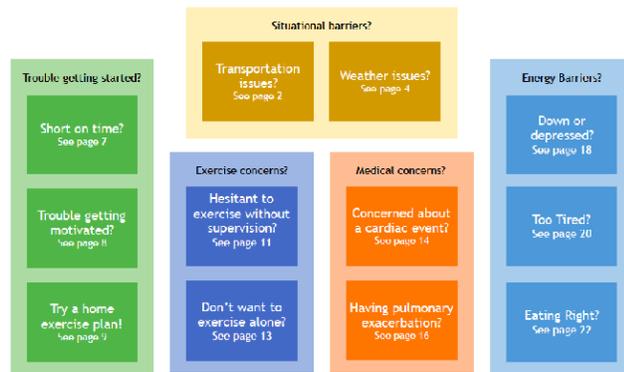
QI 2018 - Addressing Patient Barriers

Prince George YMCA Cardiopulmonary

My Physical Activity Handbook

Do you face challenges in accomplishing your exercise goals?

Find info and tips on how to overcome these challenges below



TROUBLE GETTING MOTIVATED?



Are you having a difficult time getting motivated to complete your exercises?



SMART goals is a format of setting personalized achievable goals in a way that will optimize success and can be used for exercise goals. The Acronym SMART stands for the following:

SPECIFIC: Vague goals produce vague results. Know what the goal is, and the when, where, and how of the goal.

MEASURABLE: Putting a number in your goal makes it easier to measure your progress towards the goal.

ATTAINABLE: You have to be able to achieve the goal. An extremely difficult goal will set you up for failure.

REALISTIC: Is this something that you are willing and able to work towards?

TIME BASED: Set a time limit to achieve your goal.

An example of a SMART goal is as follows...

Be able to walk 15 minutes without rest, 4 times a week, outside or in a fitness facility, at a 4/10 on the RPE scale within 4 weeks.

SPECIFIC → Walk outside or in a fitness facility.

MEASURABLE → 15 minutes, 4 times a week, 4/10 on the RPE scale.

ATTAINABLE → Do you have access to a facility to walk at if the weather doesn't permit outside walking? Is the time commitment (15 mins, 4 times a week) achievable?

REALISTIC → Is walking an exercise that you are willing and likely to do?

TIME BASED → Within 4 weeks



Your turn! Grab a pen and paper, and write down your own SMART goal!

HAVING A PULMONARY EXACERBATION?



Preventing Exacerbations:

- ❑ Consider talking to your physician about getting your annual flu vaccination.
- ❑ Take part in regular exercise –this has been shown to decrease the length and side-effects of exacerbations when they do occur
- ❑ Taking deep breaths and performing purse lip breathing can help maintain healthy lungs. If you are feeling too ill to exercise, try doing a few minutes of purse lip breathing. Doing this can make breathing feel easier and can help with relaxation.

1. Relax your neck and shoulder muscles. Inhale slowly through your nose for at least 2 counts.



2. Pucker your lips as if to blow out a candle. Exhale slowly and gently through your pursed lips for at least twice as long as you inhaled.



- ❑ Eating healthy foods can provide your body with the nutrients it needs to maintain a strong immune system and to fight off infection if it occurs

- ❑ Shortness of breath during meals can keep you from getting the nutrition your body needs. A full stomach makes it harder for you to breath fully –try to eat smaller meals throughout the day. Chewing slowly with your mouth closed can help you avoid swallowing air. Try to avoid foods that cause gas as this puts more pressure on your diaphragm making breathing more difficult!

- ❑ Try to maintain a balanced diet; refer to page 23 for nutrition tips. Also, try to drink 6-8 glasses of water a day (unless told otherwise by your doctor) as this can help you stay hydrated while also helping to thin mucus.

- ❑ Try to eat a rainbow! Different coloured vegetables tend to contain different vitamins and minerals. Vary your vegetables to get all the nutrients you need!



Success despite the challenges – what is needed for sustainability?

Successes

- Met or exceeded outcomes at Patient, Program and System level
- Provided valuable training opportunities for future health care professionals
 - recruitment and retention

Challenges

- PT position remains vacant (x 26 months)
- PT support provided by UBC Faculty, which resulted in:
 - Reduced program volume (operating at only 60% targeted patient volume)
 - As of December 2017, no further patients were admitted to the programs
- Growing demand given rates of COPD and Cardiac disease in the North



Thank you...

Questions?

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